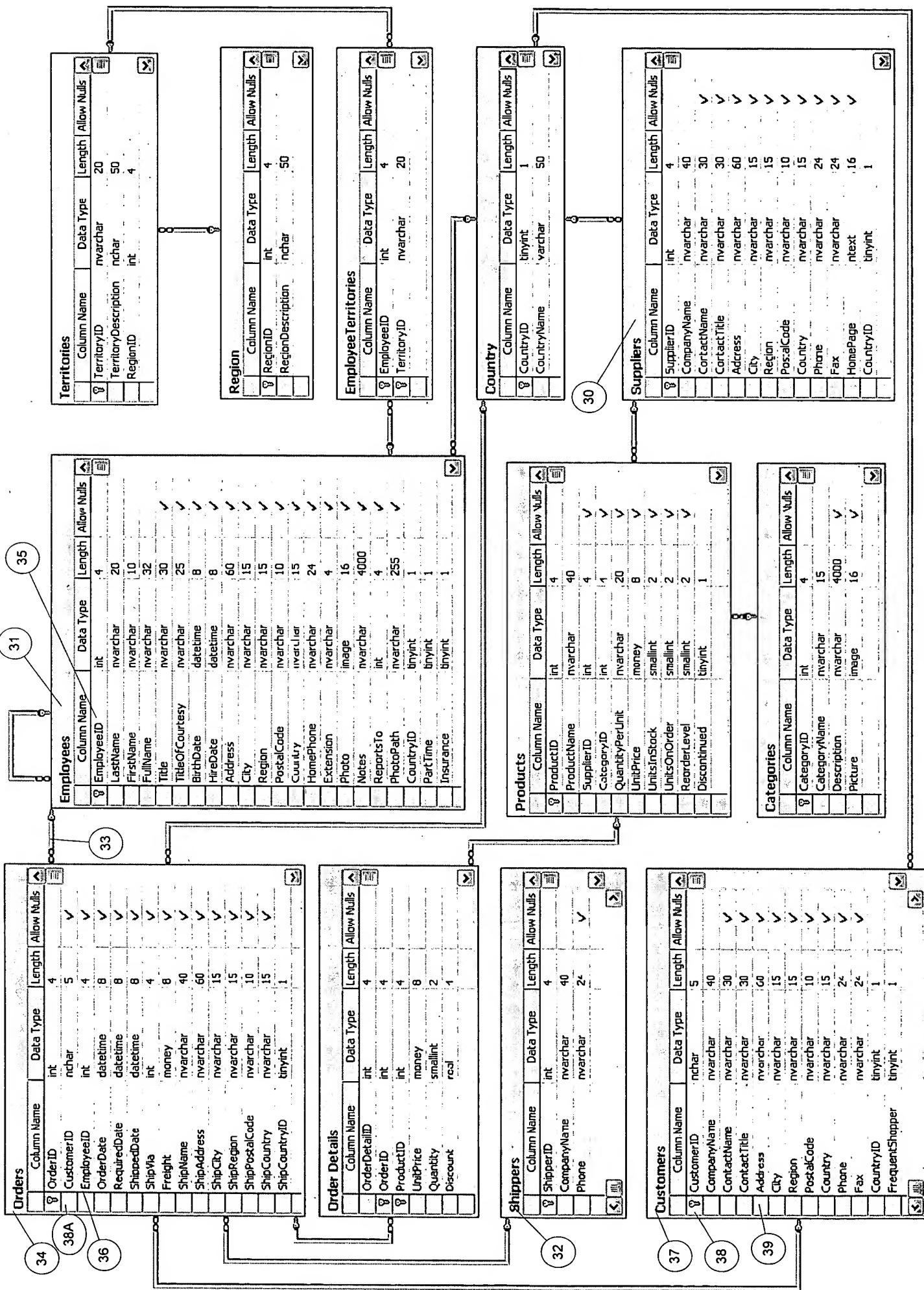


Fig. 1

Fig. 2



**Customer View**

Metadata Name	Metadata Type	Source(s)	Source Name(s)	Source Type(s)
Company Name	Field	Customers	CompanyName	Field
Contact Name	Field	Customers	ContactName	Field
Contact Title	Field	Customers	ContactTitle	Field
Address	Field	Customers	Address	Field
City	Field	Customers	City	Field
Region	Field	Customers	Region	Field
Postal Code	Field	Customers	PostalCode	Field
Country	Relation	Customers/Country	CountryID	Field/Key
Phone	Field	Customers	Phone	Field
Fax	Field	Customers	Fax	Field
Frequent Shopper	Field	Customers	FrequentShopper	Field
Customers	Aggregation Field	Customer View	Customers	Aggregation Field
Orders	Relation	Customers/Orders	CustomerID	Field/Key Field

**Employee View**

Metadata Name	Metadata Type	Source(s)	Source Name(s)	Source Type(s)
Full Name	Field	Employees	FullName	Field
First Name	Field	Employees	FirstName	Field
Last Name	Field	Employees	LastName	Field
Title of Courtesy	Field	Employees	TitleOfCourtesy	Field
Title	Field	Employees	City	Field
Hire Date	Field	Employees	HireDate	Field
Birth Date	Field	Employees	BirthDate	Field
Address	Relation	Employees	Address	Field
City	Field	Employees	City	Field
Region	Field	Employees	Region	Field
Postal Code	Field	Employees	PostalCode	Field
Country	Relation	Employees/Country	CountryID	Field/Key Field
Home Phone	Field	Employees	HomePhone	Field
Extension	Field	Employees	Extension	Field
Insurance	Field	Employees	Insurance	Field
Part Time	Field	Employees	PartTime	Field
Employees	Aggregation Field	Employee View	Employees	Aggregation Field
Employee Territories	Relation	Employees/EmployeeTerritories	EmployeeID	Key Field/Key Field
Orders	Relation	Employees/Orders	EmployeeID	Key Field/Field
Reports To	Relation	Employees/Employees	ReportsTo	Field/Key Field
Subordinates	Relation	Employee View	EmployeeID	Field

**Employee Territories View**

Metadata Name	Metadata Type	Source(s)	Source Name(s)	Source Type(s)
Employee Territories	Aggregation Field	EmployeeTerritories	Employee Territories	Aggregation Field
Employee	Relation	EmployeeTerritories/ Employees	EmployeeID	Key Field/Key Field
Territory	Relation	EmployeeTerritories/ Territories	TerritoryID	Key Field/Key Field

Fig. 3A

47

Orders View				
Metadata Name	Metadata Type	Source(s)	Source Name(s)	Source Type(s)
Order Date	Field	Orders	OrderDate	Field
Required Date	Field	Orders	RequiredDate	Field
Shipped Date	Field	Orders	ShippedDate	Field
Ship Name	Field	Orders	ShipName	Field
Ship Address	Field	Orders	ShipAddress	Field
Ship City	Field	Orders	ShipCity	Field
Ship Region	Field	Orders	ShipRegion	Field
Ship Postal Code	Field	Orders	ShipPostalCode	Field
Ship Country	Relation	Orders/Country	ShipCountryID/ CountryID	Field/Key Field
Shipper	Relation	Orders/Shippers	ShipVia/ShipperID	Field/Key Field
Freight	Field	Orders	Freight	Field
Order Total	Expression	Order View	Order Details/Sum Item Amount + Freight	
Orders	Aggregation Field	Order View	Orders	Aggregation Field
Sum Freight	Aggregation Field	Orders	Freight	Aggregation Field
Sum Order Total	Aggregation Field	Orders/Order Details/Products	OrderID/OrderID /ProductID/UnitPrice	Aggregation Field
Avg Freight	Aggregation Field	Orders	Freight	Aggregation Field
Avg Order Total	Aggregation Field	Order View	Order Total	Aggregation Field
Avg #Items per Order	Aggregation Field	Orders/Order Detail	OrderDetailID	Aggregation Field
First Order Date	Aggregation Field	Orders	OrderDate	Aggregation Field
Last Order Date	Aggregation Field	Orders	OrderDate	Aggregation Field
First Required Dated	Aggregation Field	Orders	RequiredDate	Aggregation Field
Last Required Date	Aggregation Field	Orders	RequiredDate	Aggregation Field
First Shipped Date	Aggregation Field	Orders	ShippedDate	Aggregation Field
Last Shipped Date	Aggregation Field	Orders	ShippedDate	Aggregation Field
Customer	Relation	Orders/Customers	CustomerID	Field/Key Field
Employee	Relation	Orders/Employees	EmployeeID	Field/Key Field
Order Details	Relation	Orders/Order Details	OrderID	Key Field/Key Field

49

53

48

52

51

Order Detail View				
Metadata Name	Metadata Type	Source(s)	Source Name(s)	Source Type(s)
Unit Price	Field	Order Details	UnitPrice	Field
Quantity	Field	Order Details	Quantity	Field
Discount	Field	Order Details	Discount	Field
Item Amount	Expression	Order Detail View	Unit Price * Quantity * (1 - Discount)	
Order Details	Aggregate Field	Order Details	OrderDetailID	Aggregation Field
Sum Item Amount	Aggregate Field	Order Detail View	Item Amount	Aggregation Field
Avg Item Amount	Aggregation Field	Order Details/ Order Detail View	OrderDetailID/ Item Amount	Aggregation Field
Avg Quantity	Aggregation Field	Order Details/ Order Detail View	Quantity/Order Details	Aggregation Field
Avg Discount	Aggregation Field	Order Details/ Order Detail View	Discount/Order Details	Aggregation Field
Order	Relation	Order Details/Orders	OrderID	Key Field/Key Field
Product	Relation	Order Details/ Products	ProductID	Key Field/Key Field

Fig. 3B

## Product View

Metadata Name	Metadata Type	Source(s)	Source Name(s)	Source Type(s)
Product Name	Field	Products	ProductName	Field
Unit Price	Field	Products	UnitPrice	Field
Units In Stock	Field	Products	UnitsInStock	Field
Units On Order	Field	Products	UnitsOnOrder	Field
Quantity Per Order	Field	Products	QuantityPerOrder	Field
Reorder Level	Field	Products	ReorderLevel	Field
Discontinued	Field	Products	Discontinued	Field
Products	Aggregation Field	Products	ProductID	Aggregation Field
Sum Unit Price	Aggregation Field	Products	UnitPrice	Aggregation Field
Avg Unit Price	Aggregation Field	Products/Product View	UnitPrice/Products	Aggregation Field
Avg Units In Stock	Aggregation Field	Products/Product View	UnitsInStock/Products	Aggregation Field
Avg Units On Order	Aggregation Field	Products/Product View	UnitsOnOrder/Products	Aggregation Field
Category	Relation	Products/Categories	CategoryID	Field/Key Field
Supplier	Relation	Products/Suppliers	SupplierID	Field/Key Field
Order Details	Relation	Products/Order Details	ProductID	Key Field/Key Field

## Supplier View

Metadata Name	Metadata Type	Source(s)	Source Name(s)	Source Type(s)
Company Name	Field	Suppliers	CompanyName	Field
Contact Name	Field	Suppliers	ContactName	Field
Contact Title	Field	Suppliers	ContactTitle	Field
Address	Field	Suppliers	Address	Field
City	Field	Suppliers	City	Field
Region	Field	Suppliers	Region	Field
Postal Code	Field	Suppliers	PostalCode	Field
Phone	Field	Suppliers	Phone	Field
Fax	Field	Suppliers	Fax	Field
Suppliers	Aggregation Field	Suppliers	SupplierID	Aggregation Field
Country	Relation	Suppliers/Country	CountryID	Field/Key Field
Products	Relation	Suppliers/Products	SupplierID	Key Field/Field

**Table 50 - Database Object Properties**

No.	Name	Contents and Purpose
D01	dbUtilityTypeName	"string" containing the name of the object type used to access the referenced database
D02	connectionString	"string" containing location, access method and security associated with the referenced database

**Table 51 - View Object Properties**

No.	Name	Contents and Purpose
V01	databaseID	Contains the name or token of the associated database
V02	sourceTable	Contains the name of the table in the associated database
V03	requireFilterForDetails	"true" or "false" - Determines if a query using the view requires a filter before processing a query. Usually set to "false" if the number of records in the associated database are voluminous
V04	primaryKey keyColumn	Identifies a primary key column of the associated table
V05	primaryKey dataType	Identifies the data type of a primary key column
	defaultFields	Identifies the field(s) used by the system as the default field(s) when a view associated with a relation is included in a report without following the relation
V06	defaultAggregateFields	Identifies the field(s) used by the system as the default field(s) when a view associated with a relation is included in a report without following the relation, and the relation path includes at least one to-many relationship

**Table 52 - Field Object Properties**

No.	Name	Contents and Purpose
F01	databaseID	Name or token of associated database
F02	viewID	Name or token of associated view
F03	sourceColumn	Name of column in associated view
F04	dataType	"text", "numeric", "dateTime" or "boolean" - Type of data of records returned based upon field.
F05	allowAsGroupField	"true" or "false" - Identifies whether field may be used for grouping
F06	allowDrill	"true" or "false" - Identifies whether field may be used to create a drill report
F07	field type	"aggregate" - Used for aggregation or summary fields "expression" - Used for calculated expression fields
F08	field function	Function name - Used to identify the aggregate function to be applied to field values
F09	description	Custom description of field

**Table 53 - Relation Object Properties**

No.	Name	Contents and Purpose
R01	databaseID	Name or token of associated database
R02	viewID	Name or token of associated view
R03	toViewID	Metadata view object to be used to display the fields and relations for a followed relation
R04	reverseID	Metadata relation object representing the reverse direction of this relation
R05	relationType	"OneToMany," "OneToOne" or "ManyToOne" - Defines the cardinality of the relation from the perspective of the "from" view
R06	joinType	"LeftOuterJoin" or "InnerJoin" - Default value is LeftOuterJoin. InnerJoin is generally set for ManyToOne relationships, while LeftOuterJoin is set for OneToMany relationships.
R07	joinKey sourceColumn	Join key column of the database table associated with the transferring view
R08	joinKey destColumn	Join key column of the database table associated with the transferred to view
R09	joinKey dataType	"text," "numeric," "dateTime," "boolean" - Data type of the join key column

### Database Object

```
<?xml version="1.0" encoding="utf-8" ?>
<object xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xsi:type="database"
    dbUtilityTypeName="ActiveViews.Server.SQLProviders
        .SqlServerProvider.SqlServerDbUtility, ServerLibrary"
    connectionstring="Initial Catalog=AVnwcomplete;
        Data Source=(local);Integrated Security=true"
    dbUtilityProperties g:commandTimeout="180"
    xmlns:g="http://activeviews.net/SQLProviders/DbUtility/Generic" />
</object>
```

### Customer View Object

```
<?xml version="1.0" encoding="utf-8" ?>
<object xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xsi:type="view"
    databaseID="1218"
    sourceTable="Customers"
    requireFilterForDetails="false"
    <primaryKey keyColumn="CustomerID" dataType="Text" />
    <defaultFields>
        <field ref="northwind\Customer\Company Name" />
    </defaultFields>
    <defaultAggregateFields>
        <!-- Customer\Customers (count) -->
        <field ref="1228" type="aggregate" />
    </defaultAggregateFields>
</object>
```

### Address Source Field Object

```
<?xml version="1.0" encoding="utf-8" ?>
<object xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xsi:type="savedSourceField"
    databaseID="1218" viewID="northwind\Customer"
    sourceColumn="Address" dataType="Text">
    <field allowAsGroupField="false" />
</object>
```

### Orders Relation Object

```
<?xml version="1.0" encoding="utf-8" ?>
<object xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xsi:type="relation" databaseID="1218"
    viewID="northwind\Customer" toViewID="northwind\Order"
    reverseID="northwind\Order\Customer" relationType="OneToMany"
    <join joinType="LeftOuterJoin">
        <joinKey sourceColumn="CustomerID" destColumn="CustomerID" dataType="Text" />
    </join>
</object>
```

### Customer Relation Object

```
<?xml version="1.0" encoding="utf-8" ?>
<object xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xsi:type="relation" databaseID="1218"
    viewID="northwind\Order"
    toViewID="northwind\Customer"
    reverseID="northwind\Customer\Orders" relationType="ManyToOne"
    <join joinType="InnerJoin">
        <joinKey sourceColumn="CustomerID" destColumn="CustomerID" dataType="Text" />
    </join>
</object>
```

Fig. 3E

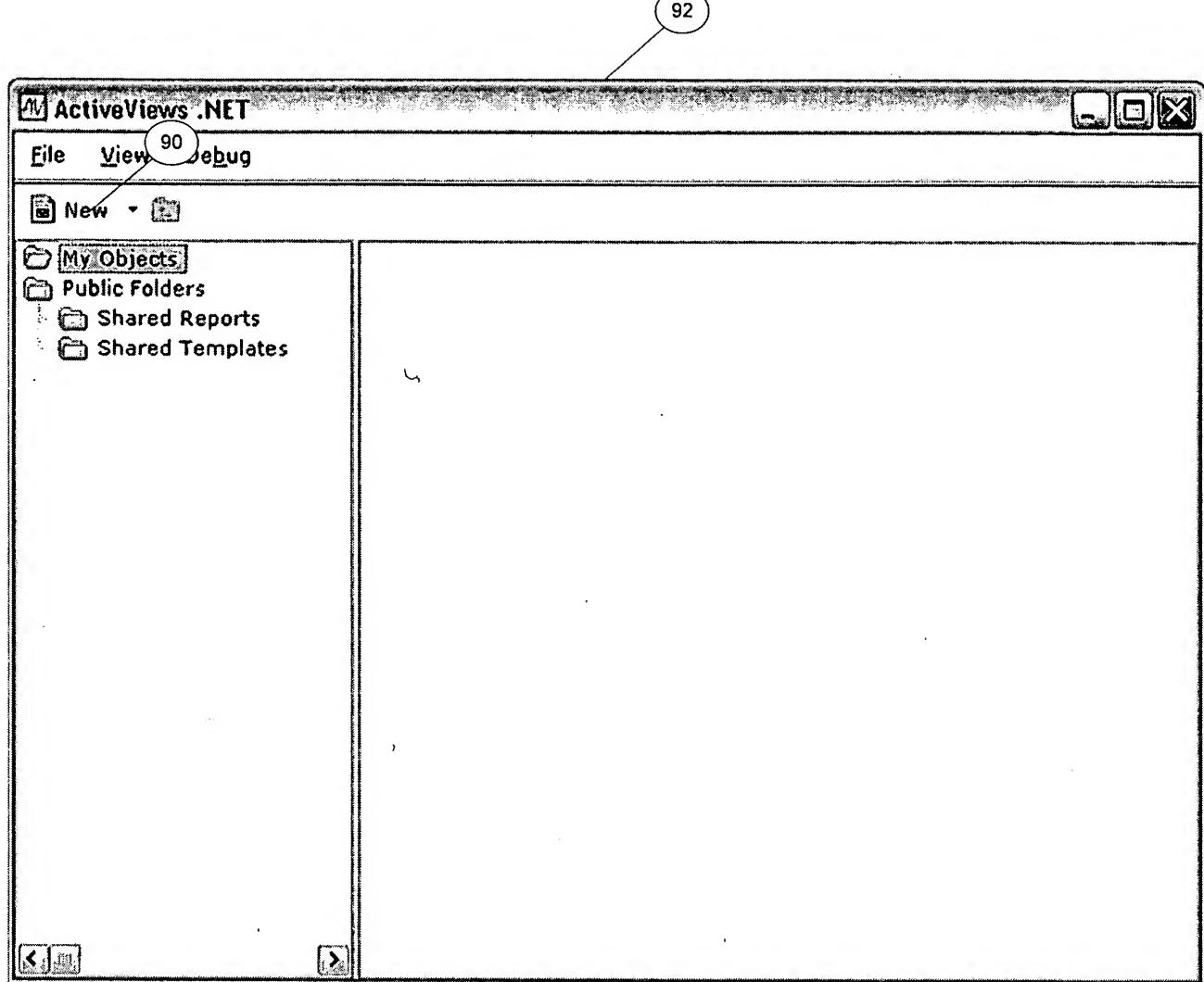


Fig. 4

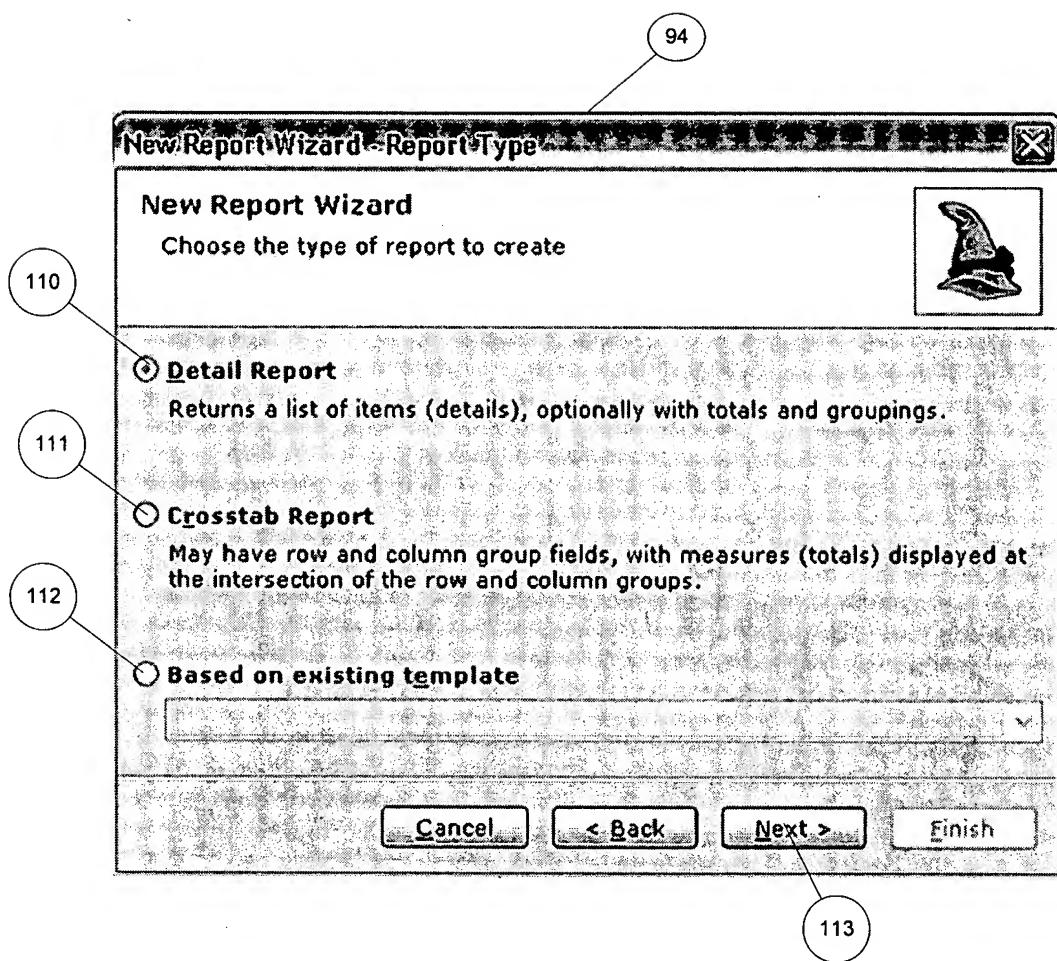


Fig. 5

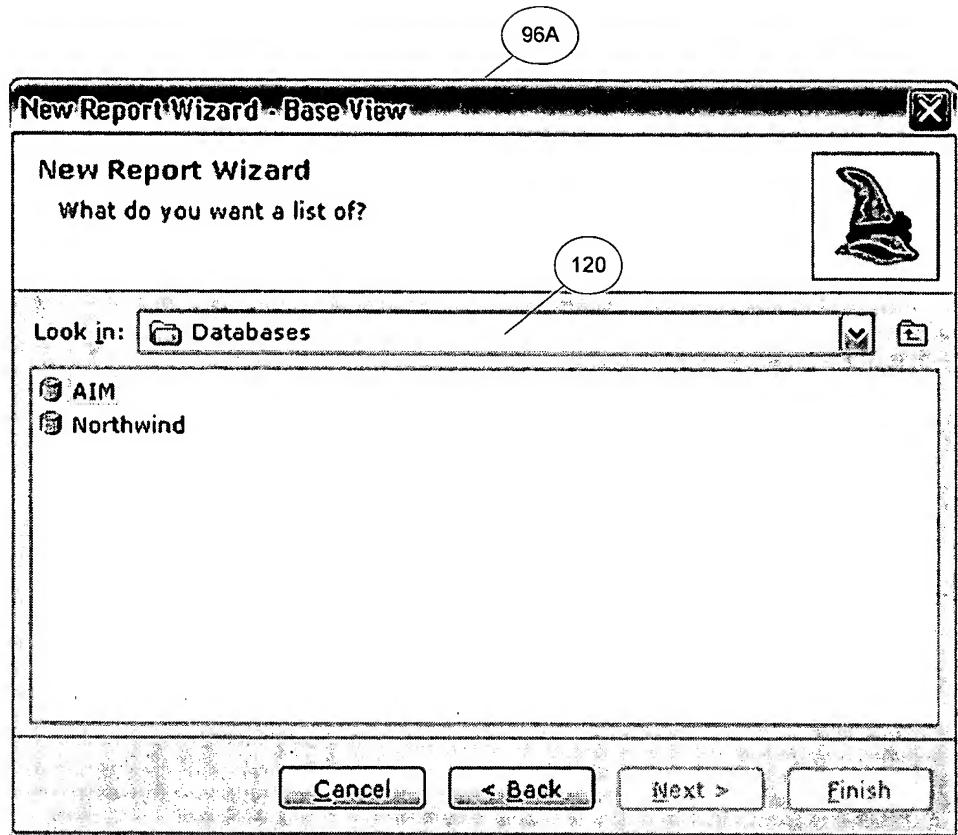


Fig. 6A

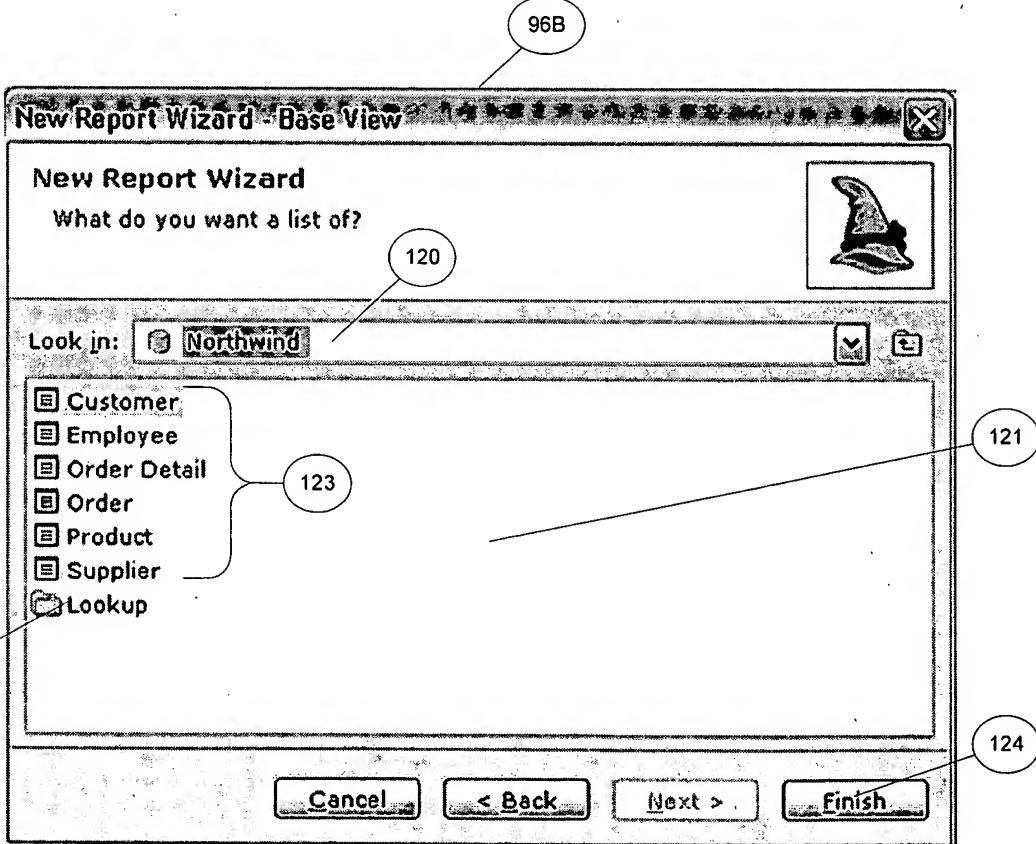


Fig. 6B

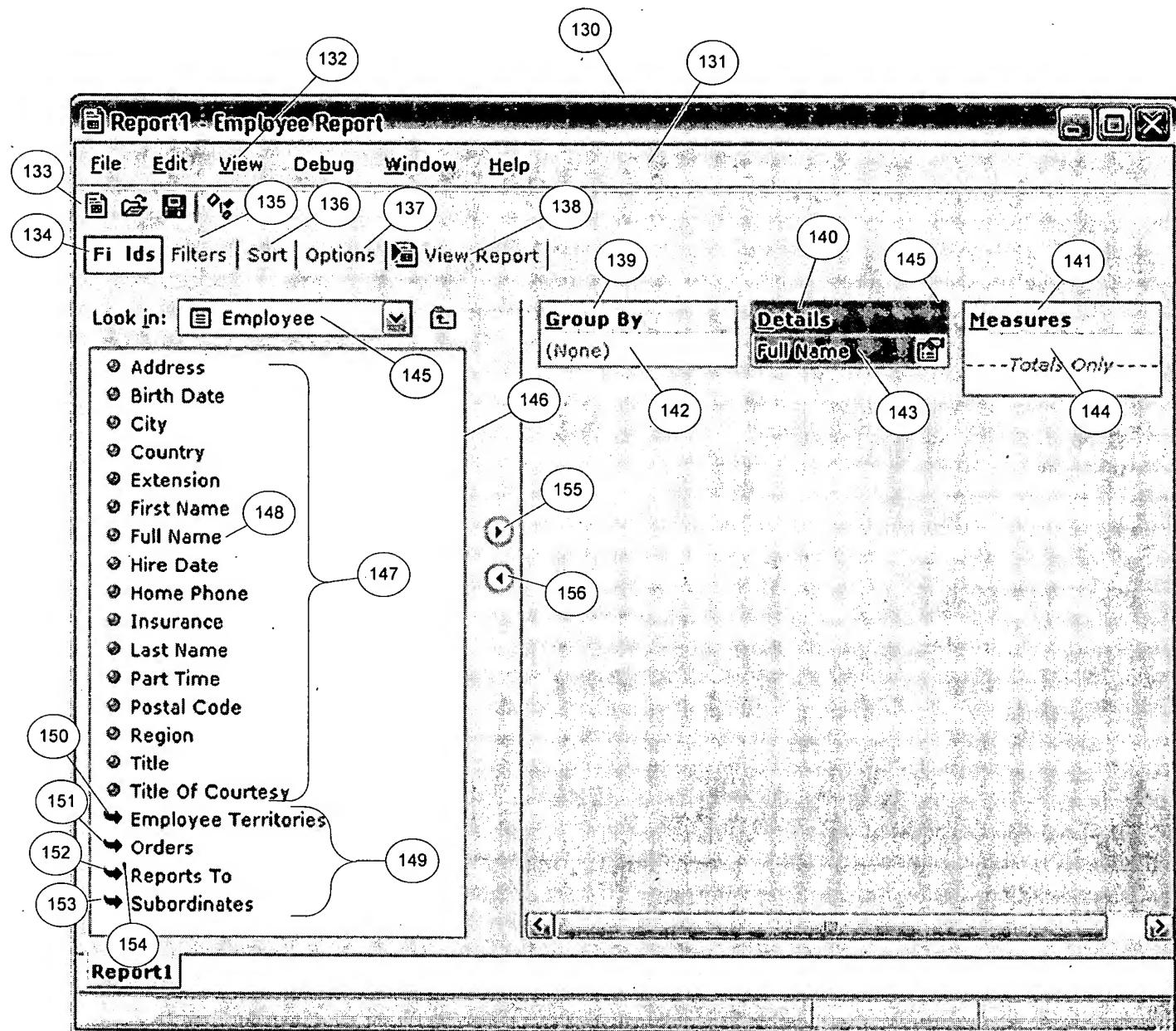


Fig. 7

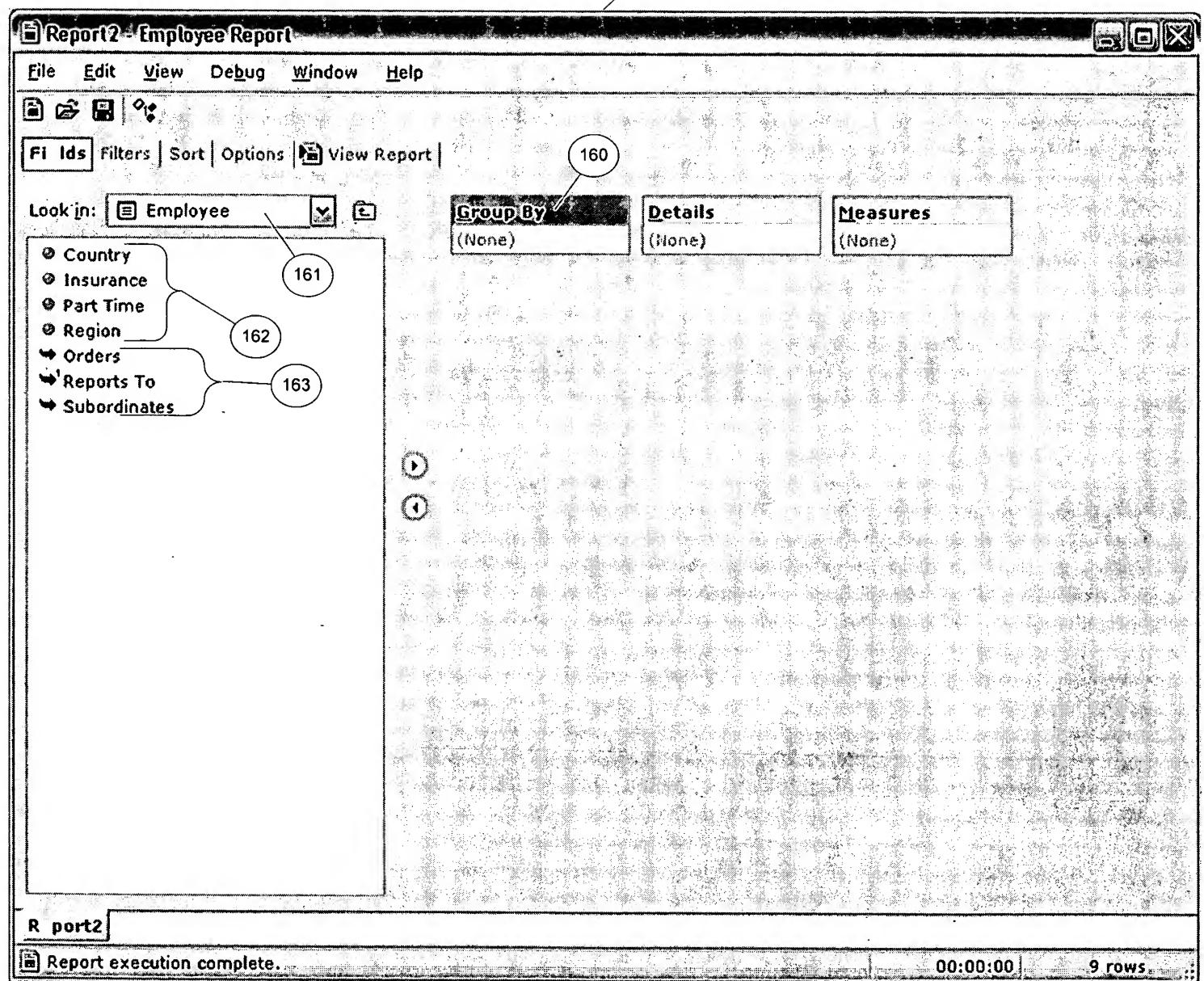


Fig. 8

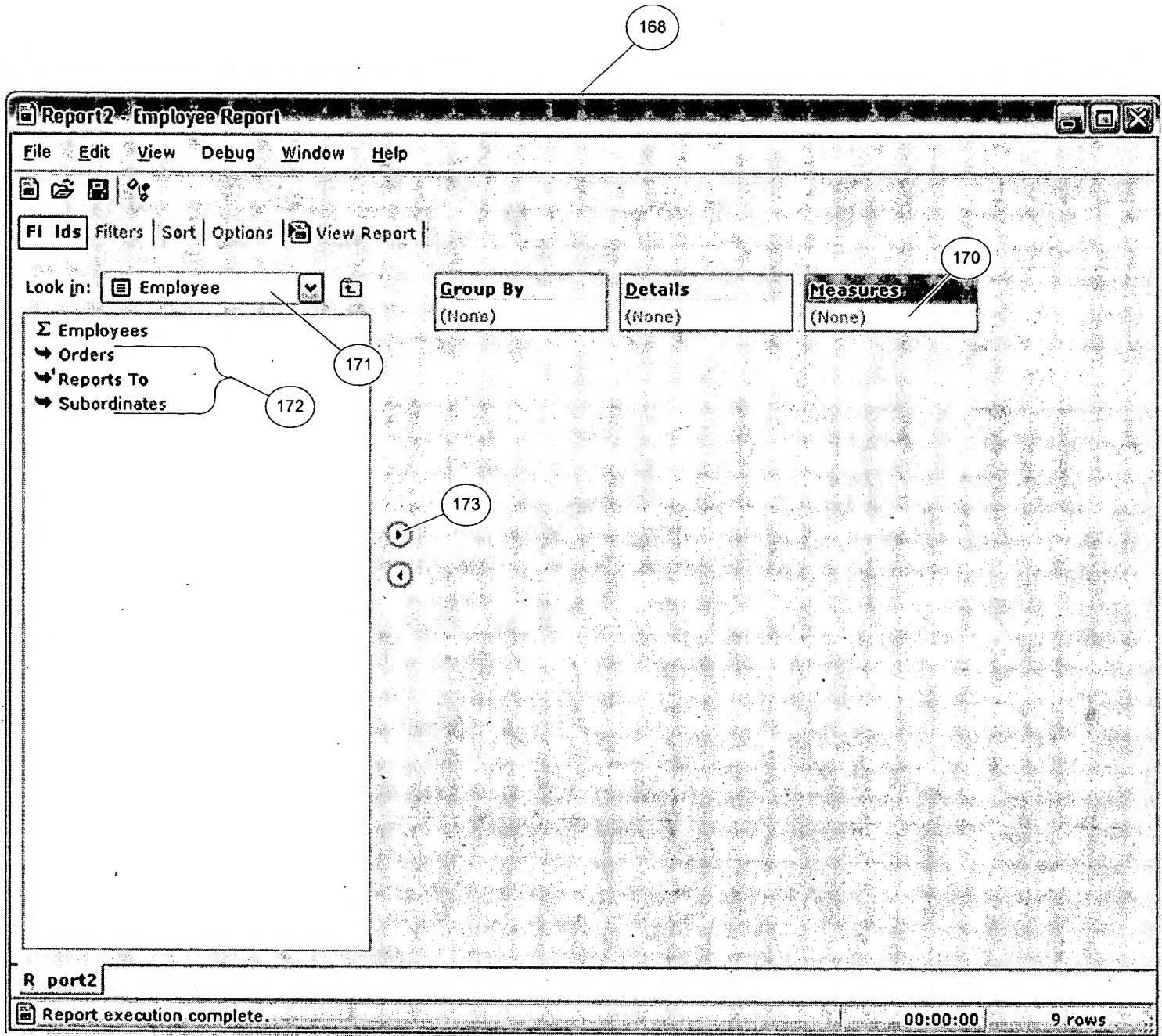


Fig. 9

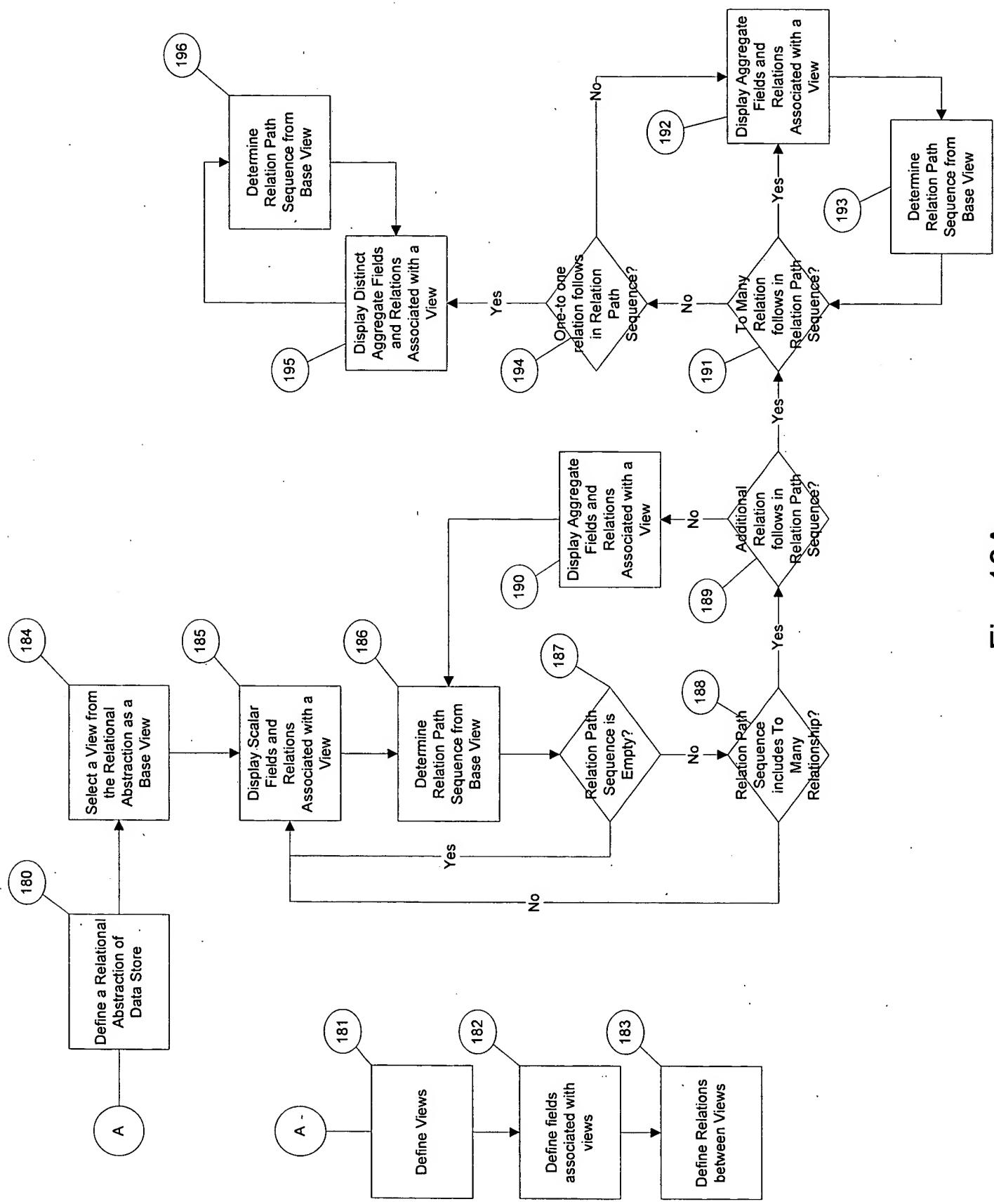


Fig. 10A

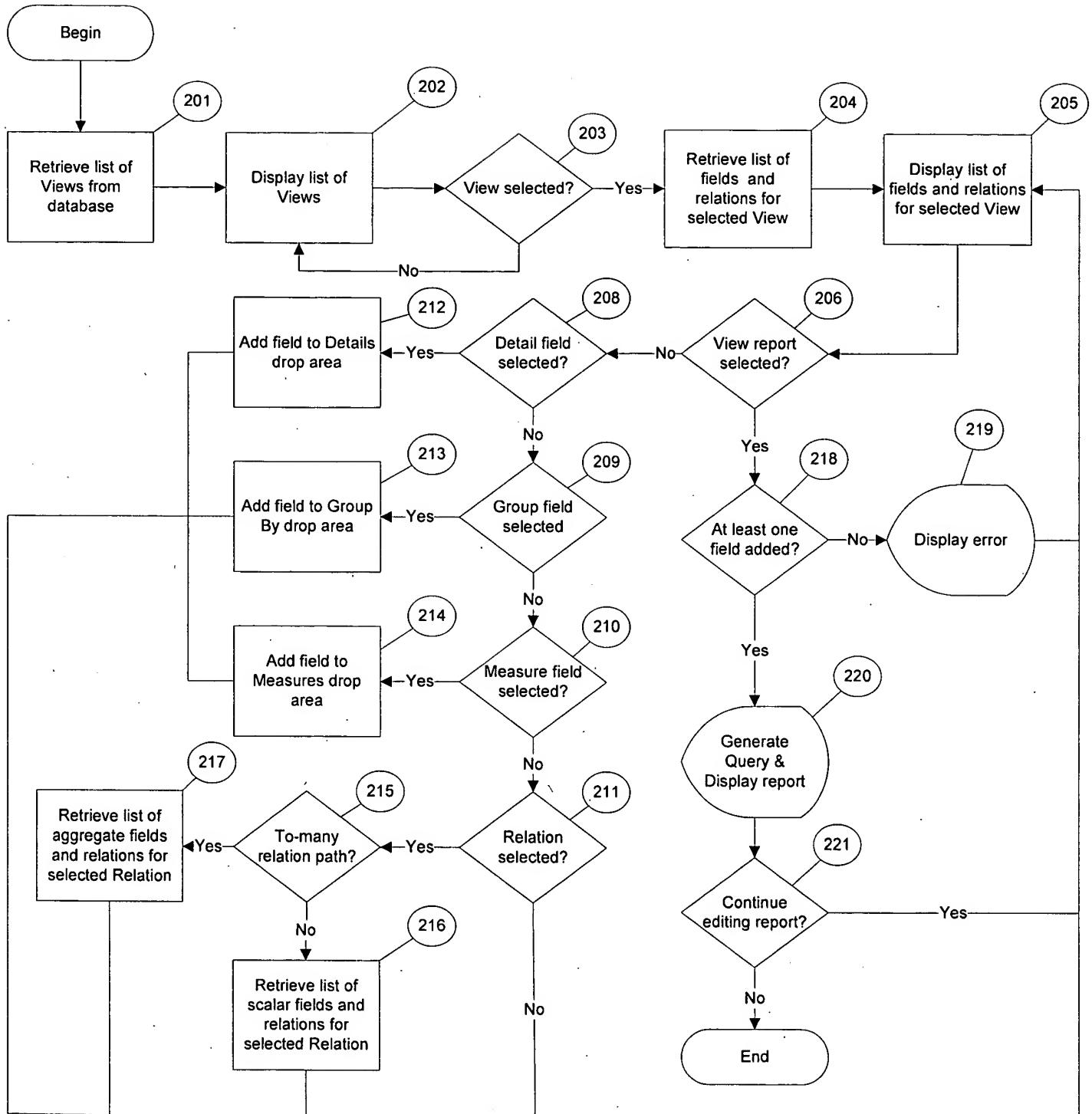
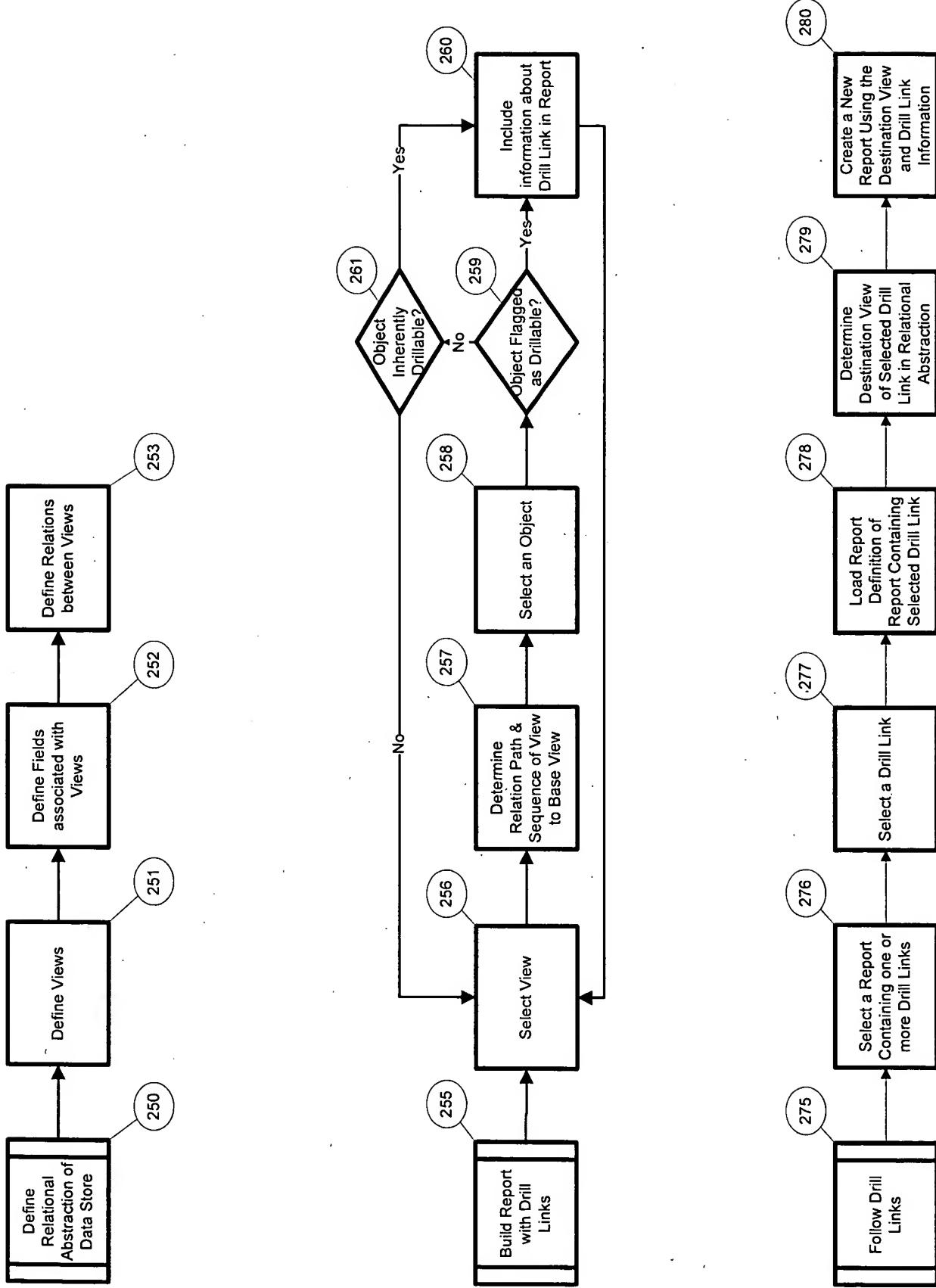


Fig. 10B

Fig. 11



mycustomerreport						
Criteria		Options		View Report		
Criteria: Customers with #Orders >= 10						
Customer Count: 39	302	303	304	305	306	307
Country	Company Name	Address	City	Postal Code	#Orders	
Austria	Ernst Handel	Kärntgasse 6	Graz	8010	30	308
	Piccolo und mehr	Gesslweg 14	Salzburg	5020	10	
	Subtotal (Austria)				40	
Belgium	Suprême délices	Boulevard Tirou, 255	Charleroi	B-6000	12	
	Subtotal (Belgium)				12	
Brazil	Hanari Carnes	Rua do Pão, 67	Rio de Janeiro	05454-876	14	
	Queen Cozinha	Alameda dos Canários, 691	Sao Paulo	05487-020	13	
	Ricardo Adocicados	Av. Copacabana, 267	Rio de Janeiro	02389-850	11	
	Subtotal (Brazil)				38	
Canada	Bottom-Dollar Markets	23 Tsawassen Blvd.	Tsawassen	T2F 8M4	14	
	Mère Paillarde	43 rue St. Laurent	Montréal	H1J 1C3	13	
	Subtotal (Canada)				27	
Denmark	Vaffeljernet	Smagsløget 45	Aarhus	8200	11	
	Subtotal (Denmark)				11	
Finland	Wartian Herku	Tuukkari 38	Oulu	90110	15	
	Subtotal (Finland)				15	
France	Blondeddsdsi père et fils	24, place Kléber	Strasbourg	67000	11	
	Bon app'	12, rue des Bouchers	Marseille	13008	17	
	La maison d'Asie	1 rue Alsace-Lorraine	Toulouse	31000	14	
	Virtuelles en stock	2, rue du Commerce	Lyon	69004	10	
	Subtotal (France)				52	

Fig. 12

320

ActiveViews - [Order2]

File Edit View Help

Criteria: Orders with Customer with (#Orders >= 10, Country = Austria)

321

mycustomerreport Order2

Criteria Options View Report

322

Order2

323

Order Count: 40

Order Date	Required Date	Shipped Date	Freight	Ship Name	Ship Address	Ship City	ST
7/17/1996	8/14/1996	7/23/1996	\$140.51	Ernst Handel	Kirchgasse 6	Graz	80
7/23/1996	8/20/1996	7/31/1996	\$146.06	Ernst Handel	Kirchgasse 6	Graz	80
11/1/1996	12/9/1996	11/20/1996	\$162.33	Ernst Handel	Kirchgasse 6	Graz	80
11/13/1996	12/11/1996	11/25/1996	\$360.63	Piccolo und mehr	Geislweg 14	Salzburg	50
11/29/1996	12/27/1996	12/2/1996	\$101.95	Ernst Handel	Kirchgasse 6	Graz	80
12/13/1996	1/10/1997	12/16/1996	\$94.77	Ernst Handel	Kirchgasse 6	Graz	80
12/23/1996	1/20/1997	12/26/1996	\$126.38	Ernst Handel	Kirchgasse 6	Graz	80
12/24/1996	1/21/1997	1/1/1997	\$122.46	Piccolo und mehr	Geislweg 14	Salzburg	50
1/2/1997	2/13/1997	1/10/1997	\$67.88	Ernst Handel	Kirchgasse 6	Graz	80
1/3/1/1997	1/31/1997	1/9/1997	\$73.79	Ernst Handel	Kirchgasse 6	Graz	80
1/27/1997	2/24/1997	2/3/1997	\$31.29	Piccolo und mehr	Geislweg 14	Salzburg	50
1/30/1997	2/13/1997	2/3/1997	\$458.78	Ernst Handel	Kirchgasse 6	Graz	80
2/1/1/1997	2/18/1997	2/18/1997	\$47.94	Ernst Handel	Kirchgasse 6	Graz	80
2/1/1/1997	4/25/1997	4/9/1997	\$5.29	Piccolo und mehr	Geislweg 14	Salzburg	50
3/28/1997	5/20/1997	5/16/1997	\$789.95	Ernst Handel	Kirchgasse 6	Graz	80
4/22/1997	6/5/1997	5/12/1997	\$339.22	Piccolo und mehr	Geislweg 14	Salzburg	50
5/3/1997	6/17/1997	7/4/1997	\$26.06	Ernst Handel	Kirchgasse 6	Graz	80
7/10/1997	8/7/1997	7/14/1997	\$96.78	Ernst Handel	Kirchgasse 6	Graz	80
7/11/1997	8/8/1997	7/18/1997	\$35.12	Piccolo und mehr	Geislweg 14	Salzburg	50
8/15/1997	9/12/1997	8/18/1997	\$477.90	Ernst Handel	Kirchgasse 6	Graz	80
9/12/1997	10/10/1997	9/19/1997	\$78.09	Ernst Handel	Kirchgasse 6	Graz	80

Fig. 13

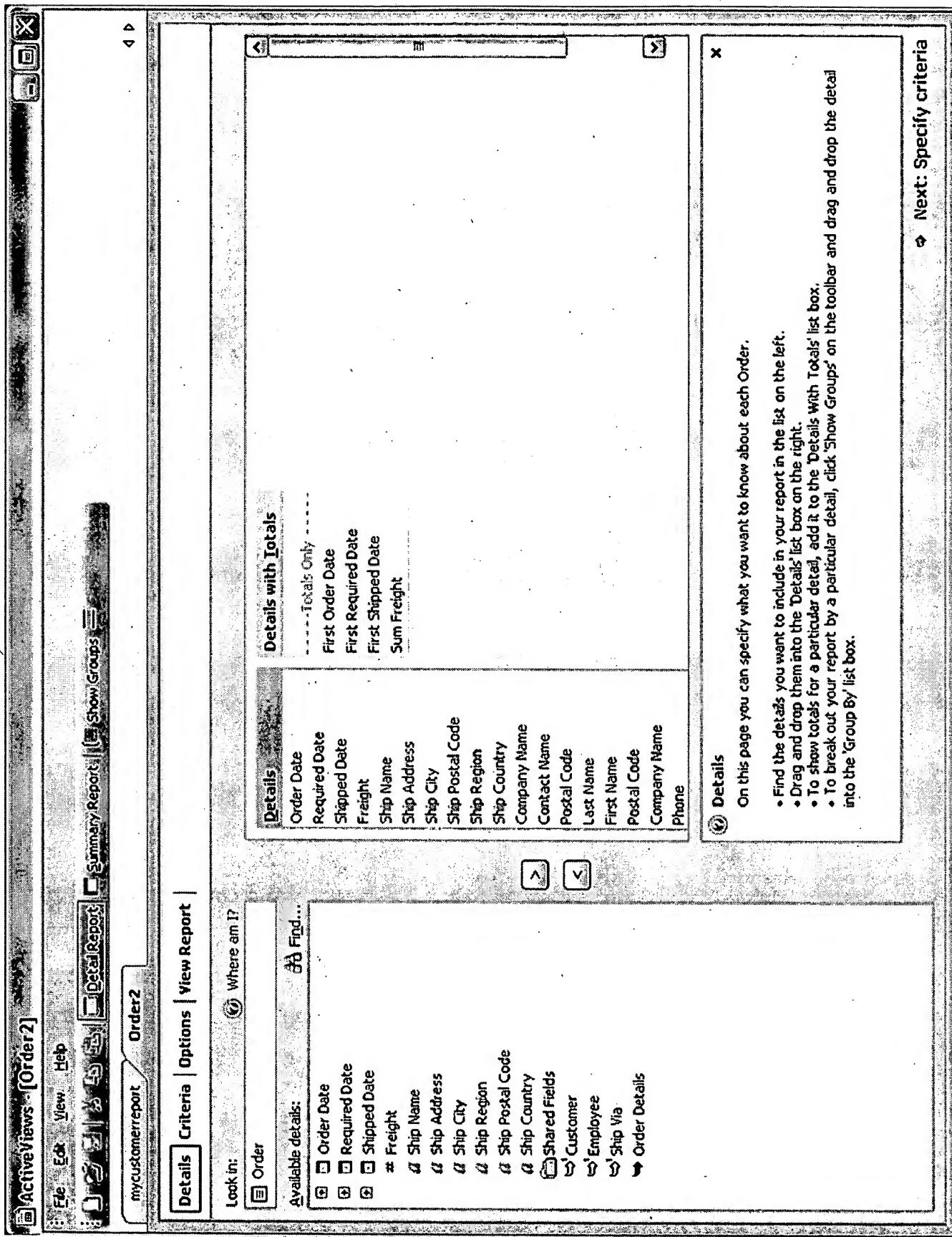


Fig. 14

Fig. 15

